

Claims

What is claimed is:

- 5
- Claim 1. A method of horizontally structured CAD/CAM modeling, comprising:
- establishing a coordinate system;
 - adding a base feature;
 - adding a form feature;
 - said form feature exhibiting an associative relationship with said coordinate system.
- Claim 2. The method of Claim 1 wherein said associative relationship is a parent/child relationship.
- Claim 3. The method of Claim 1 wherein said form feature exhibits an associative relationship with another form feature.
- Claim 4. The method of Claim 3 wherein said associative relationship is a parent/child relationship.
- Claim 5. The method of Claim 1 wherein said base feature exhibits an associative relationship with said form feature.
- Claim 6. The method of Claim 5 wherein said associative relationship is a parent/child relationship.
- Claim 7. The method of Claim 1 wherein said base feature exhibits an associative relationship with said coordinate system.
- Claim 8. The method of Claim 7 wherein said associative relationship is a parent/child relationship.

Claim 9. The method of Claim 1 wherein said base feature is positioned and oriented relative to said coordinate system.

Claim 10. The method of Claim 1 wherein said coordinate system comprises one or more datum planes.

Claim 11. The method of Claim 10 wherein said establishing said coordinate system comprises:

creating a first datum plane positioned and oriented relative to a reference;

5 creating a second datum plane positioned and oriented relative to said reference; and

creating a third datum plane positioned and oriented relative to said reference.

Claim 12. The method of Claim 11 wherein said first datum plane, said second datum plane, and said third datum plane are orthogonal.

Claim 13. The method of Claim 2 wherein said form feature exhibits an associative relationship with another form feature.

Claim 14. The method of Claim 13 wherein said associative relationship is a parent/child relationship.

Claim 15. The method of Claim 14 wherein said base feature exhibits an associative relationship with said form feature.

Claim 16. The method of Claim 15 wherein said associative relationship is a parent/child relationship.

Claim 17. The method of Claim 16 wherein said base feature exhibits an associative relationship with said coordinate system.

Claim 18. The method of Claim 17 wherein said associative relationship is a parent/child relationship.

Claim 19. The method of Claim 18 wherein said base feature is positioned and oriented relative to said coordinate system.

Claim 20. The method of Claim 19 wherein said coordinate system comprises one or more datum planes.

Claim 21. The method of Claim 20 wherein establishing said coordinate system comprises:

creating a first datum plane positioned and oriented relative to a reference;

5 creating a second datum plane positioned and oriented relative to said reference; and

creating a third datum plane positioned and oriented relative to said reference.

Claim 22. The method of Claim 21 wherein said first datum plane, said second datum plane, and said third datum plane are orthogonal.

Claim 23. The method of Claim 1 further including modifying a link among a plurality of modeling elements.

Claim 24. The method of Claim 23 wherein said link comprises an associative relationship.

Claim 25. The method of Claim 24 wherein said associative relationship is a parent/child relationship.

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Claim 26. The method of Claim 23 wherein said modifying comprises removing said link among said modeling elements.

Claim 27. The method of Claim 23 wherein said modifying comprises establishing said link among said modeling elements.

Claim 28. The method of Claim 23 wherein said modifying links among modeling elements includes substituting a second plurality of modeling elements for said plurality of modeling elements.

Claim 29. A horizontally structured CAD/CAM model, comprising:

- a coordinate system;
- a base feature;
- a form feature;
- said form feature exhibiting an associative relationship with said coordinate system.

Claim 30. The model of Claim 29 wherein said associative relationship is a parent/child relationship.

Claim 31. The model of Claim 29 wherein said form feature exhibits an associative relationship with another form feature.

Claim 32. The model of Claim 31 wherein said associative relationship is a parent/child relationship.

Claim 33. The model of Claim 29 wherein said base feature exhibits an associative relationship with said form feature.

Claim 34. The model of Claim 33 wherein said associative relationship is a parent/child relationship.

Claim 35. The model of Claim 29 wherein said base feature exhibits an associative relationship with said coordinate system.

Claim 36. The model of Claim 35 wherein said associative relationship is a parent/child relationship.

Claim 37. The model of Claim 29 wherein said base feature is positioned and oriented relative to said coordinate system.

Claim 38. The model of Claim 29 wherein said coordinate system comprises one or more datum planes.

Claim 39. The model of Claim 38 wherein said coordinate system comprises:

a first datum plane positioned and oriented relative to a reference;

5 a second datum plane positioned and oriented relative to said reference; and

a third datum plane positioned and oriented relative to said reference.

Claim 40. The model of Claim 39 wherein said first datum plane, said second datum plane, and said third datum plane are orthogonal.

Claim 41. The model of Claim 30 wherein said form feature exhibits an associative relationship with another form feature.

Claim 42. The model of Claim 41 wherein said associative relationship is a parent/child relationship.

Claim 43. The model of Claim 42 wherein said base feature exhibits an associative relationship with said form feature.

Claim 44. The model of Claim 43 wherein said associative relationship is a parent/child relationship.

Claim 45. The model of Claim 44 wherein said base feature exhibits an associative relationship with said coordinate system.

Claim 46. The model of Claim 45 wherein said associative relationship is a parent/child relationship.

Claim 47. The model of Claim 46 wherein said base feature is positioned and oriented relative to said coordinate system.

Claim 48. The model of Claim 47 wherein said coordinate system comprises one or more datum planes.

Claim 49. The model of Claim 48 wherein said coordinate system comprises:

a first datum plane positioned and oriented relative to a reference;

5 a second datum plane positioned and oriented relative to said reference; and

a third datum plane positioned and oriented relative to said reference.

Claim 50. The model of Claim 49 wherein said first datum plane, said second datum plane, and said third datum plane are orthogonal.

Claim 51. The model of Claim 29 further including a link which is modifiable among a plurality of modeling elements.

Claim 52. The model of Claim 51 wherein said link comprises an associative relationship.

Claim 53. The model of Claim 52 wherein said associative relationship is a parent/child relationship.

Claim 54. The model of Claim 51 wherein said link is modified via removal thereof among said modeling elements.

Claim 55. The model of Claim 51 wherein said link is modified via establishment thereof among said modeling elements.

Claim 56. The model of Claim 51 wherein said link is modified among modeling elements by way of substituting a second plurality of modeling elements for said plurality of modeling elements.

Claim 57. A storage medium encoded with a machine-readable computer program code for horizontally structured CAD/CAM modeling, said storage medium including instructions for causing a computer to implement a method comprising:

- 5 establishing a coordinate system;
- adding a base feature;
- adding a form feature;
- said form feature exhibiting an associative relationship with said coordinate system.

Claim 58. The storage medium of Claim 57 wherein said associative relationship is a parent/child relationship.

Claim 59. The storage medium of Claim 57 wherein said form feature exhibits an associative relationship with another form feature.

Claim 60. The storage medium of Claim 57 wherein said base feature exhibits an associative relationship with said form feature.

Claim 61. The storage medium of Claim 57 wherein said base feature exhibits an associative relationship with said coordinate system.

Claim 62. The storage medium of Claim 57 wherein said base feature is positioned and oriented relative to said coordinate system.

Claim 63. The storage medium of Claim 57 wherein said coordinate system comprises one or more datum planes.

Claim 64. The storage medium of Claim 57 further including instructions for causing a computer to implement a method comprising: modifying a link among a plurality of modeling elements.

Claim 65. The storage medium of Claim 64 wherein said link comprises an associative relationship.

Claim 66. The storage medium of Claim 65 wherein said associative relationship is a parent/child relationship.

Claim 67. The storage medium of Claim 64 wherein said modifying comprises removing said link among said modeling elements.

Claim 68. The storage medium of Claim 64 wherein said modifying comprises establishing said link among said modeling elements.

Claim 69. The storage medium of Claim 64 wherein said modifying links among modeling elements includes substituting a second plurality of modeling elements for said plurality of modeling elements.

Claim 70. A computer data signal for horizontally structured CAD/CAM modeling, said computer data signal comprising code configured to cause a computer to implement a method comprising:

- 5
- establishing a coordinate system;
 - adding a base feature;
 - adding a form feature;
 - said form feature exhibiting an associative relationship with said coordinate system.

Claim 71. The computer data signal of Claim 70 wherein said associative relationship is a parent/child relationship.

Claim 72. The computer data signal of Claim 70 wherein said form feature exhibits an associative relationship with another form feature.

Claim 73. The computer data signal of Claim 70 wherein said base feature exhibits an associative relationship with said form feature.

Claim 74. The computer data signal of Claim 70 wherein said base feature exhibits an associative relationship with said coordinate system.

Claim 75. The computer data signal of Claim 70 wherein said base feature is positioned and oriented relative to said coordinate system.

Claim 76. The computer data signal of Claim 70 wherein said coordinate system comprises one or more datum planes.

Claim 77. The computer data signal of Claim 70 further including code configured to cause a computer to implement a method further comprising modifying a link among a plurality of modeling elements.

Claim 78 The computer data signal of Claim 77 wherein said link comprises an associative relationship.

Claim 79. The computer data signal of Claim 78 wherein said associative relationship is a parent/child relationship.

Claim 80. The computer data signal of Claim 77 wherein said modifying comprises removing said link among said modeling elements.

Claim 81. The computer data signal of Claim 77 wherein said modifying comprises establishing said link among said modeling elements.

Claim 82. The computer data signal of Claim 77 wherein said modifying links among modeling elements includes substituting a second plurality of modeling elements for said plurality of modeling elements.